

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A circuit for providing power to a lead gaseous discharge lamp with a pre-determined specification, comprising:

a transformer having a primary winding and a secondary winding, said secondary winding being part of a resonant circuit;

first and second lead-connection nodes for coupling of the load gaseous discharge lamp in series to the secondary winding;

a switch coupled in series to the primary winding, an on-time and an off-time of the switch being controllable by a control element, for generating a voltage pulse over the primary winding; and

a diode directly coupled in parallel to the primary winding

for demagnetizing the transformer during the off-time of the switch, the on-time and the off-time of the switch being predetermined.

2. (Previously Presented) The circuit according to claim 1, further comprising a capacitor connected in parallel to the secondary winding for adjusting a resonance period of the resonant circuit.

3. (Previously Presented) The circuit according to claim 1, wherein the transformer has a couple factor which is smaller than one.

4. (Previously Presented) The circuit according to claim 1, wherein the control element is selected to cause the on-time of the switch to be at least half of a resonance frequency of the resonant circuit.

5. (Previously Presented) The circuit according to claim 1,

wherein the control element is selected to cause the off-time of the switch to be sufficient to reduce a current in the diode to substantially zero during demagnetization of the transformer.

6. (Previously Presented) The circuit according to claim 1, further comprising a resistor connected in series to the diode to reduce the off-time.

7. (Currently Amended) A method for providing power to a load gaseous discharge lamp, comprising the acts of:

applying a number of voltage pulses to a primary winding of a transformer so as to produce each time a high-voltage pulse on a secondary winding of the transformer, wherein the high-voltage pulse is shaped by transformer inductances and capacitances at a secondary side of the transformer to create a load pulse;

applying the load pulse to the load gaseous discharge lamp;
and

providing, between every application of a voltage pulse, a current path through a diode directly connected between the primary

winding for primary current so that the transformer is demagnetized and saturation of the transformer is prevented.

8. (Currently Amended) The method according to claim 7,

~~wherein the load is a high-intensity discharge lamp, the method further comprising the acts of:~~

applying a first series of pulses to ignite said high-intensity discharge lamp, and

applying a second series of pulses to operate the high-intensity discharge lamp during an electrode heating phase of said high-intensity discharge lamp.

9. (Currently Amended) ~~The circuit according to claim 1, further comprising~~
A circuit for providing power to a load with a pre-determined specification, comprising:

a transformer having a primary winding and a secondary winding, said secondary winding being part of a resonant circuit;
connection nodes for coupling of the load in series to the secondary winding;

a switch coupled in series to the primary winding, an on-time
and an off-time of the switch being controllable by a control
element, for generating a voltage pulse over the primary winding;
a diode coupled in parallel to the primary winding for
demagnetizing the transformer during the off-time of the switch,
the on-time and the off-time of the switch being predetermined; and

a controller configured to:

means for determining determine a maximum oscillation period
of the resonant circuit based on a maximum value of a capacitance
at a secondary side of the transformer when the load is connected;

means for choosing choose the on-time of the switch to be
higher that than half of said maximum oscillation period.

10. (Previously Presented) The circuit according to claim 1,
wherein the off-time of the switch is chosen to be higher than a
time necessary to reduce a current through the diode to
substantially zero.

11. (Currently Amended) The circuit according to claim 1,

further comprising A circuit for providing power to a load with a pre-determined specification, comprising:

a transformer having a primary winding and a secondary winding, said secondary winding being part of a resonant circuit;
connection nodes for coupling of the load in series to the secondary winding;

a switch coupled in series to the primary winding, an on-time and an off-time of the switch being controllable by a control element, for generating a voltage pulse over the primary winding;

a diode coupled in parallel to the primary winding for demagnetizing the transformer during the off-time of the switch,
the on-time and the off-time of the switch being predetermined; and

a controller configured to:

means for calculating calculate a mean value of a short-circuit current over the on-time and the off-time of the switch for a range of couple factors, and

means for selecting select a couple factor for which the mean value is minimal.

12. (Currently Amended) A circuit for providing power to a

load-gaseous discharge lamp comprising:

a transformer having a primary winding and a secondary winding, the load-gaseous discharge lamp being connected to the secondary winding;

a switch coupled to the primary winding, an on-time and an off-time of the switch being controllable by a control element, for generating a voltage pulse over the primary winding; and

a diode directly connected in parallel to the primary winding for demagnetizing the transformer during the off-time of the switch.

13. (Previously Presented) The circuit of claim 12, further comprising a capacitor connected in parallel to the secondary winding for adjusting a resonance period of a resonant circuit associated with the secondary winding.

14. (Previously Presented) The circuit of claim 12, wherein the transformer has a couple factor which is smaller than one.

15. (Previously Presented) The circuit of claim 12, wherein the control element is selected to cause the on-time of the switch to be at least half of a resonance frequency of a resonant circuit associated with the secondary winding.

16. (Previously Presented) The circuit of claim 12, wherein the control element is selected to cause the off-time of the switch to be sufficient to reduce a current in the diode to substantially zero during demagnetization of the transformer.

17. (Previously Presented) The circuit of claim 12, further comprising a resistor connected in series with the diode to reduce the off-time.

18. (Previously Presented) The circuit of claim 12, wherein the control element is configured to control the switch to provide a voltage pulse to the primary winding only if a free-running current through the diode is substantially zero.

19. (New) The circuit of claim 1, wherein the gaseous discharge lamp comprises a high-intensity discharge lamp.

20. (New) The circuit of claim 9, wherein the load comprises a gaseous discharge lamp.

21. (New) The circuit of claim 9, wherein the load comprises a high-intensity discharge lamp.

22. (New) The circuit of claim 9, wherein the controller is further configured to:

calculate a mean value of a short-circuit current over the on-time and the off-time of the switch for a range of couple factors, and

select a couple factor for which the mean value is minimal.

23. (New) The circuit of claim 22, wherein the couple factor is smaller than one.

24. (New) The circuit of claim 9, wherein the control element is selected to cause the on-time of the switch to be at least half of a resonance frequency of the resonant circuit.

25. (New) The circuit of claim 9, wherein the control element is selected to cause the off-time of the switch to be sufficient to reduce a current in the diode to substantially zero during demagnetization of the transformer.

26. (New) The circuit of claim 9, further comprising a resistor connected in series to the diode to reduce the off-time.

27. (New) The circuit of claim 11, wherein the load comprises a gaseous discharge lamp.

28. (New) The circuit of claim 11, wherein the load comprises a high-intensity discharge lamp.

29. (New) The circuit of claim 11, wherein the couple factor is smaller than one.

30. (New) The circuit of claim 11, wherein the controller is further configured to:

determine a maximum oscillation period of the resonant circuit based on a maximum value of a capacitance at a secondary side of the transformer when the load is connected;

choose the on-time of the switch to be higher than half of said maximum oscillation period.

31. (New) The circuit of claim 11, wherein the control element is selected to cause the on-time of the switch to be at least half of a resonance frequency of the resonant circuit.

32. (New) The circuit of claim 11, wherein the control element is selected to cause the off-time of the switch to be sufficient to reduce a current in the diode to substantially zero during demagnetization of the transformer.

33. (New) The circuit of claim 11, further comprising a resistor connected in series to the diode to reduce the off-time.

34. (New) A circuit for providing power to a gaseous discharge lamp with a pre-determined specification, comprising:

 a transformer having a primary winding and a secondary winding, said secondary winding being part of a resonant circuit; connection nodes for coupling of the gaseous discharge lamp in series to the secondary winding;

 a switch coupled in series to the primary winding, an on-time and an off-time of the switch being controllable by a control element, for generating a voltage pulse over the primary winding; and

 a diode directly coupled in parallel to the primary winding for demagnetizing the transformer during the off-time of the switch, wherein the off-time of the switch is selected so that oscillation which starts when the switch is closed is not interrupted when the switch is opened, and continues until the

transformer is at least partly demagnetized, thereby avoiding need for feedback to control operation of the switch.

35. (New) The circuit of claim 34, wherein the on-time is at least half of a resonance frequency of the resonant circuit.

36. (New) The circuit of claim 34, wherein the off-time is sufficient to reduce a current in the diode to substantially zero during demagnetization of the transformer.

37. (New) The circuit of claim 34, further comprising a resistor connected in series to the diode to reduce the off-time.

38. (New) A method for providing power to a gaseous discharge lamp, comprising the acts of:

applying a number of voltage pulses to a primary winding of a transformer so as to produce each time a high-voltage pulse on a secondary winding of the transformer, wherein the high-voltage pulse is shaped by transformer inductances and capacitances at a

secondary side of the transformer to create a lamp pulse;
applying the lamp pulse to the gaseous discharge lamp;
providing during an off-time, between every application of a voltage pulse which is applied during an on-time, a current path through a diode directly connected between the primary winding for primary current so that the transformer is demagnetized and saturation of the transformer is prevented; and
setting the off-time so that oscillation, which starts when a switch is closed to provide the on-time, is not interrupted when the switch is opened, and continues until the transformer is at least partly demagnetized, thereby avoiding need for feedback to control operation of the switch.

39. (New) The method of claim 38, wherein the on-time is at least half of a resonance frequency of the resonant circuit.

40. (New) The circuit of claim 38, wherein the off-time is sufficient to reduce a current in the diode to substantially zero during demagnetization of the transformer.

41. (New) The circuit of claim 38, further comprising
connecting a resistor in series to the diode to reduce the off-
time.